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1997 HAMILTON-WENTWORTH COLLISION REPORT

PREPARED BY:

URBAN MUNICIPAL

DEC 16 1998

GOVERNMENT DOCUMENTS



City of
HAMILTON

PUBLIC WORKS
AND TRAFFIC

URBAN MUNICIPAL

DEC 16 1998

GOVERNMENT DOCUMENTS

1997 Hamilton-Wentworth Collision Report

Prepared For:

The Transportation Department
of the Regional Municipality of Hamilton-Wentworth
and
The Hamilton-Wentworth Regional Police Department

By:

The City of Hamilton Public Works and Traffic Department

Project Manager:

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1997 HAMILTON-WENTWORTH COLLISION REPORT - VOLUME 1

Introduction

The annual report is a summary of factors associated with traffic collisions that occurred in the Regional Municipality of Hamilton-Wentworth. The latest report contains the summary of data specific to 1997. The report contains overall frequencies and trends, plus location-specific data. This type of information is produced annually. A companion report with more general data about drivers, pedestrians and environment data is based on three year averages. The companion report was last produced in 1996 and will be produced again in 1999.

The Regional Municipality of Hamilton-Wentworth is situated in southern Ontario at the westerly end of Lake Ontario. The following municipalities are located within the Region: the Town of Ancaster; the Town of Dundas; the Town of Flamborough; the Township of Glanbrook; the City of Hamilton and the City of Stoney Creek. The estimated total population of these combined localities was 467,799 in 1996.

Traffic collisions are a primary cause of accidental deaths, injuries and associated property losses. The intention of this report is to provide factual information to those agencies and persons concerned with the safety of the roadway transportation system within the Regional Municipality of Hamilton-Wentworth.

Traffic collisions frequently involve complex interactions between human behaviour, vehicle characteristics and environmental conditions. The factor or factors responsible for causing a collision are not always the most obvious nor are they always readily apparent. Caution should be exercised in drawing conclusions from the statistics presented in this report and conclusions should be drawn only with appropriate qualifications and supportive information.

The information presented in this report is based primarily upon motor vehicle collisions investigated by the Hamilton-Wentworth Regional Police. All collisions occurring in Hamilton-Wentworth are included in the statistics in this report, excluding collisions occurring on the Queen

Elizabeth Way and Highway 403 and on-ramps and off-ramps to those highways. Collisions occurring on service roads to the Queen Elizabeth Way are included.

From April, 1997 through to January, 1998, 93.0 km of roadway was transferred to the Region of Hamilton-Wentworth from the Province of Ontario. For consistency, the statistics in this report are calculated as if all of the transferred roads were under the Region on January 1, 1997. The effect of the added length of road on collisions is explained later in the report.

1997 COMPARED WITH PREVIOUS YEARS

1. Overall Collisions

Six more collisions were reported in 1997 than in 1996, an increase of less than 1%. The total number of collisions reported in 1996 was the lowest in the past 3 decades. The minor increase occurred despite the fact that, over the course of 1997-1998, the Province transferred approximately 93.0 km of road to Hamilton-Wentworth. When comparing 1995-1997 to previous years, one should consider the fact that a citizen's report form was introduced in 1994 to record collisions below the normal injury qualifications or minimal property damage limits. It has been noted by the Hamilton-Wentworth Regional Police Department that an undetermined number of reportable collisions are being recorded on the citizen's report form, thereby possibly lowering the true number of reportable collisions. However, these are primarily property damage collisions and this should not materially affect the number of injury collision reports.

The occurrence of injury collisions also decreased from 1996, by 28 injury collisions, a 1.3% reduction. The number of injury collisions reported was the lowest in over 30 years. However, the number of fatal collisions in 1997 was 28, a 100% increase over 1996. Of these fatal collisions, 7 (one-half of the increase) were on the newly transferred roads, reflecting the high-speed nature of the added roads.

2. Bicycle Injuries

The number of people injured in motor vehicle collisions while riding on a bicycle increased by 5 from 1996 to 1997. There was only 1 cyclist fatality in 1997.

3. Pedestrian Fatalities

In 1997 there were 11 pedestrian fatalities, 4 more than 1996.

4. Alcohol Involvement

Alcohol involvement in motor vehicle collisions has been, on average, steadily decreasing since 1978. In the years 1990 to present, alcohol involvement in collisions averaged 5.7 percent, compared to 9.1 percent for the previous 10 years. The rate was 5.4 percent in 1997, a slight decrease over 1996. The involvement of young drivers (under 21) who had been drinking decreased slightly over 1996.

SUMMARY

- * In 1997, 5,693 reported traffic collisions occurred on municipal roadways in the Regional Municipality of Hamilton-Wentworth. These collisions resulted in:
 - 15 driver, 4 passenger fatalities
 - 1 cyclist fatality
 - 11 pedestrian fatalities
 - 2,856 driver, cyclist or passenger injuries (not including fatalities)
 - 286 pedestrian injuries (not including fatalities)
 - 16,018 persons (equal to approximately 3.4 percent of the Regional population) being involved in a reported traffic collision
- * The overall frequency of collisions in Hamilton-Wentworth is generally lower than other major Canadian municipalities.

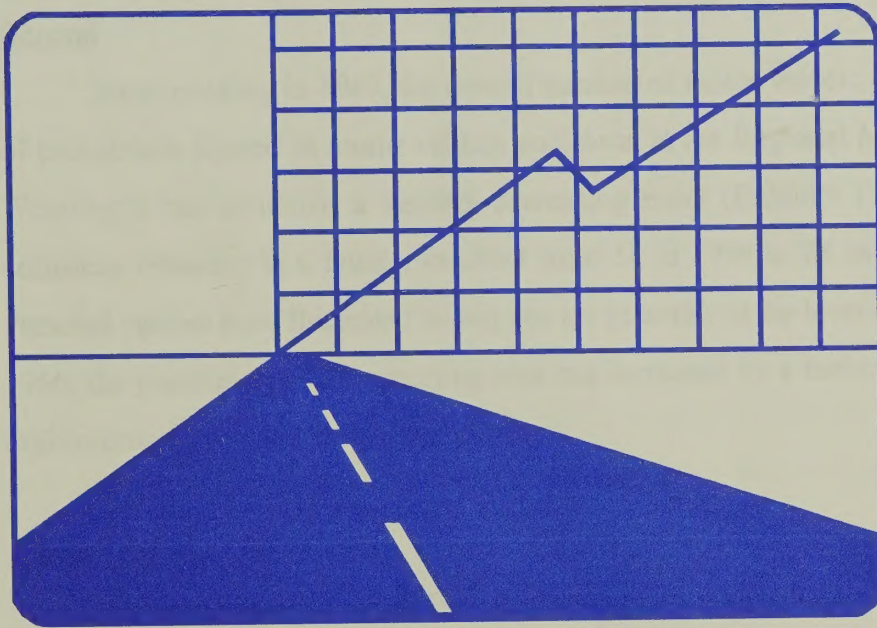
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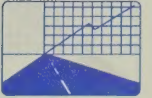
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Chapter One

Trends



Chapter 1

General

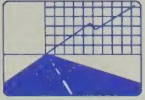
Since peaking in 1967, the overall number of motor vehicle collisions and the number of pedestrians injured in motor vehicle collisions in the Regional Municipality of Hamilton-Wentworth has exhibited a steadily decreasing trend (Exhibits 1.4, 1.6). The number of collisions resulting in a fatality doubled from 14 in 1996 to 28 in 1997 (Exhibits 1.4, 1.5). Personal injuries have fluctuated widely but are presently at the level of the early 1960's. Since 1966, the population of the reporting area has increased by a factor of 1.6 and motor vehicle registrations have risen by a factor of 3.0.

Normalizing the Data

To assess historical trends, collision data should be expressed as a normalized rate through the use of one of several factors. Information on annual motor vehicle use would provide the most accurate assessment of a motorist's exposure, and hence, likelihood of involvement in a collision. Motor vehicle registration data is somewhat less accurate as a normalizing factor, but is utilized later in this report since exposure information is not available. Population provides an adequate normalizing factor, if motor vehicle use or registration cannot be used. Exhibits 1.1, 1.2, 1.3 and associated analysis in the rest of this chapter refer to data which has been calculated on a population **rate** basis (based on 1996 population data), rather than on the basic number of occurrences.

Collisions

The overall motor vehicle collision rate is shown in Exhibit 1.1. As of January 1, 1978, the reporting level for property damage only collisions was raised from \$200.00 to \$400.00. On January 1, 1985, it was raised again from \$400.00 to \$700.00. The level was raised to \$1,000.00 in 1998. The reporting area also increased in 1974. Considering these changes, the rate for total collisions appears to show a decline from 1977 to 1997, with the exception of 1993 and 1994. **However, 1996 and 1997 show the lowest rates experienced in the 30 years for which records have been kept.** The rate of collisions involving injury or fatality shows a modest decline from 1973 to 1993 (Exhibit 1.1).



Injury collisions are also at the lowest rate for the 30-year record keeping period.

Individual trends of injuries and fatalities are discussed below.

Injuries

The rate of personal injury (Exhibits 1.2, 1.5) is rather volatile. However, since 1989, the rate of personal injury has been on the decline and the rate of personal injury in 1997 is the lowest it has been since 1965. This volatility is likely related to the nature and severity of the collisions which could be the result of a number of factors. The rate and number of pedestrian injuries (Exhibits 1.3, 1.6) shows a significant and continuing decline from 1966 to 1992 and a period of stability from 1992 to the present.

Of the 16,018 persons involved in collisions, in 1997, 3142 received injuries. The chance of an involved person sustaining injury in a collision varied from 17.8 percent for a motor vehicle passenger, to 90 percent for a pedestrian. The risk of injury is significantly higher for cyclists and pedestrians (Exhibit 1.8). The percentages are high for cyclists and pedestrians, as it is unlikely that this type of collision could occur with no personal injury and less than \$700.00 total property damage.

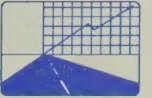
Fatalities

In 1997, 31 persons died in motor vehicle collisions in Hamilton-Wentworth. Fatal collisions are rare events and small changes in the number of fatalities cause large fluctuations in the fatality rate (Exhibit 1.2, 1.4). Of the 31 fatalities, 7 occurred on roads which were under Provincial jurisdiction prior to 1997.

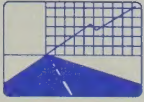
In 1997, 11 pedestrians died in motor vehicle collisions. The fatality rate for pedestrians (Exhibit 1.3, 1.6) displays a general reducing trend, especially since 1978, although 1997 was slightly above the average for the past 10 years.

Alcohol Involvement

When viewed as a proportion of overall collisions, alcohol involvement (Exhibit 1.7) has been, on average, steadily decreasing since 1978. In the years 1988 to 1997, collision



involvement remained relatively constant with an average of 5.8 percent which is much lower than the previous 12-year average of 10.3 percent. The 1997 percentage of 5.4 is a slight decrease over 1996. The percentage of total fatal collisions that were alcohol-related has been generally decreasing since 1984, with the exception of 1989, 1993 and 1996. An average of 14.2 percent of all fatal collisions between 1987 and the present have been alcohol-related, with the average for the past 3 years being 11.3 percent. In 1997, that statistic decreased to 7.1 percent. The percentage of impaired/had-been-drinking drivers under the age of 21 has steadily been declining since 1979, with the exception of 1986. However, the 1996 and 1997 percentages of young drivers in collisions who had been drinking were the highest since 1988. These figures indicate that, in recent years, alcohol involvement in collisions has been declining, but a trend of increased alcohol use by young drivers may be emerging.



MOTOR VEHICLE COLLISIONS: HISTORY OF RATES OF TOTAL COLLISIONS & COLLISIONS CAUSING INJURY/FATALITY

Exhibit 1.1

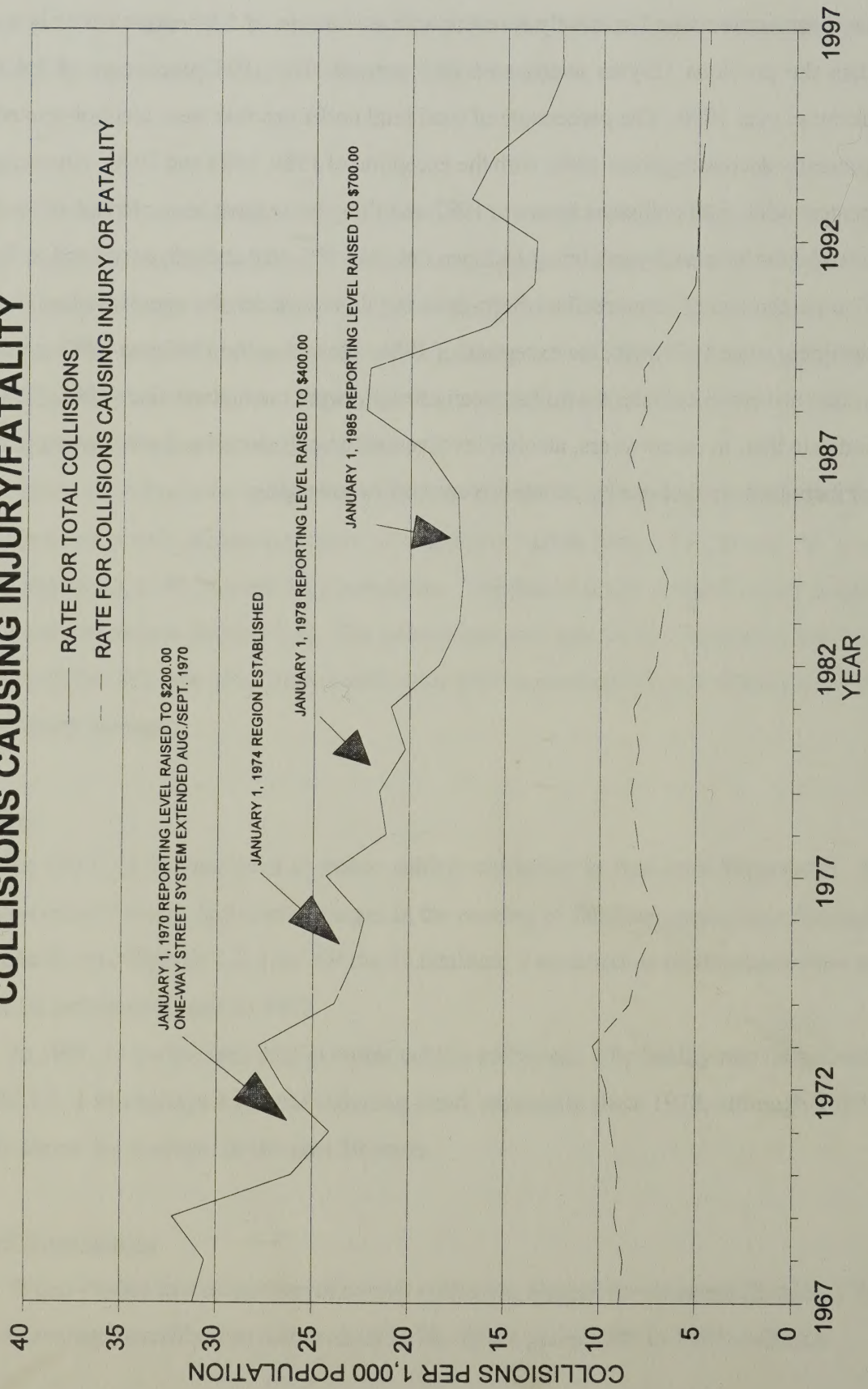
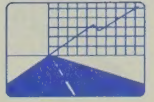
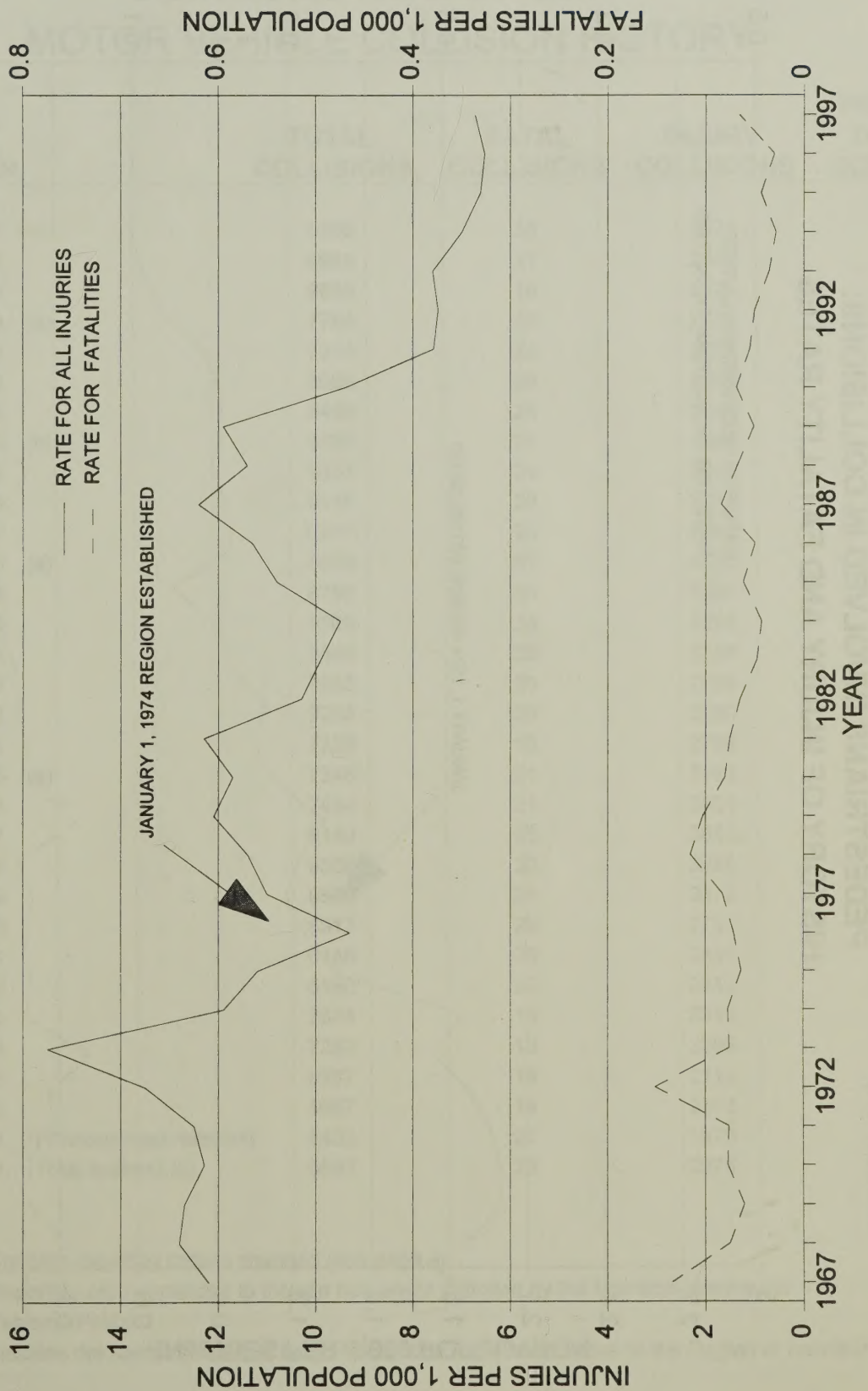


Exhibit 1.2

PERSONAL INJURIES/FATALITIES: HISTORY OF INJURY AND FATALITY RATES CAUSED BY MOTOR VEHICLE COLLISIONS



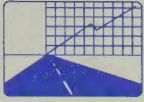
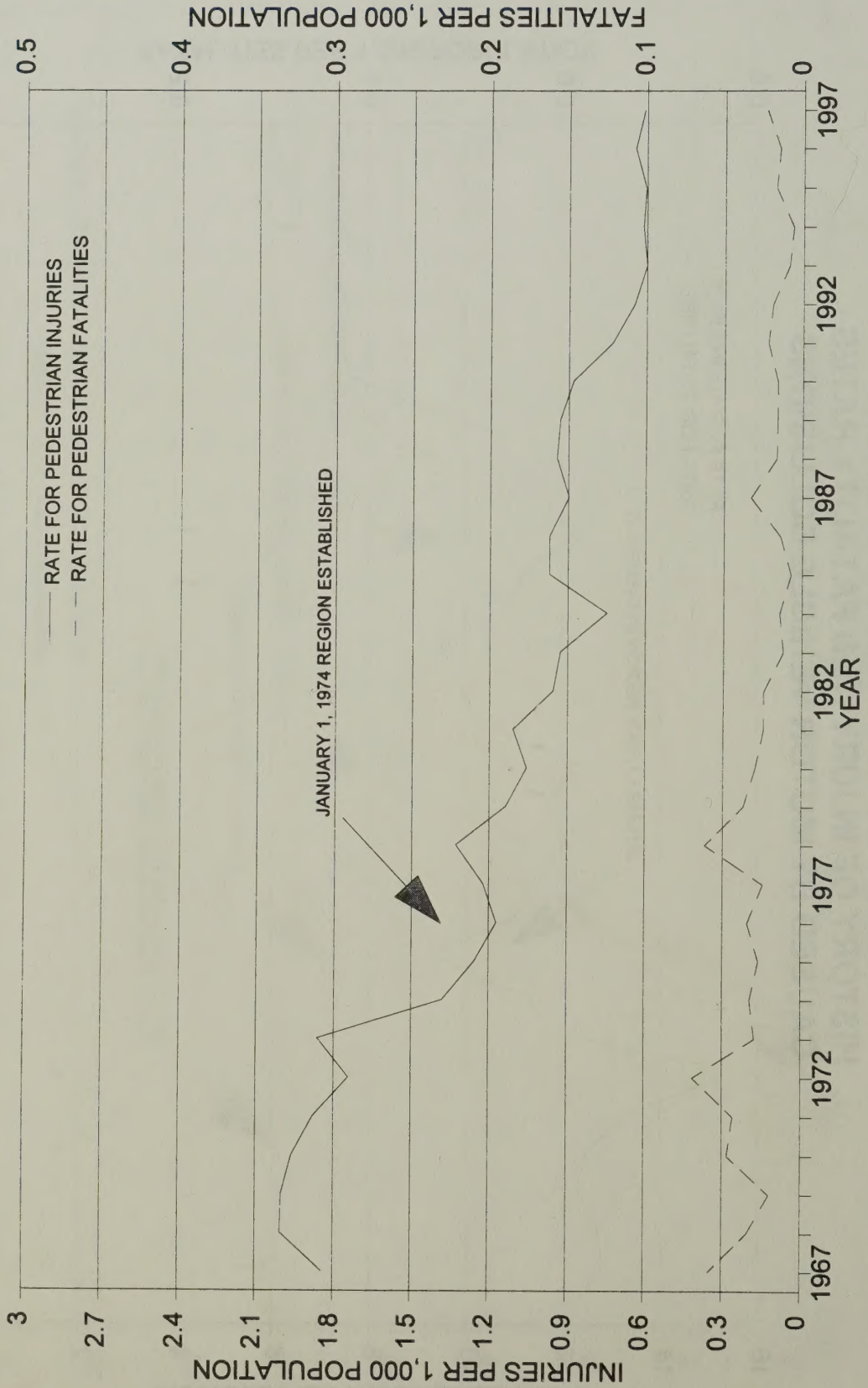


Exhibit 1.3

PEDESTRIANS INVOLVED IN COLLISIONS: HISTORY OF INJURY AND FATALITY RATES



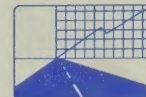


Exhibit 1.4

MOTOR VEHICLE COLLISION HISTORY

YEAR	TOTAL COLLISIONS	FATAL COLLISIONS	INJURY COLLISIONS	PROPERTY DAMAGE COLLISION
1967	9106	35	2575	6496
1968	8983	21	2547	6415
1969	9589	19	2721	6849
1970 (a)	7799	23	2676	5100
1971	7314	22	2821	4471
1972	8065	39	2901	5125
1973	8499	23	3143	5333
1974 (b)	9599	29	3364	6206
1975	9354	24	3219	6111
1976	9146	28	2816	6302
1977	10011	33	3182	6796
1978 (a)	8636	45	3246	5345
1979	8798	39	3389	5370
1980	9305	33	3253	5019
1981	8660	28	3398	5234
1982	7663	23	2939	4701
1983	7268	20	2839	4409
1984	7228	18	2726	4484
1985 (a)	7346	21	3153	4172
1986	7434	21	3331	4082
1987	8140	35	3615	4491
1988	9586	22	3285	6279
1989	9566	21	3372	6173
1990	6917	25	2751	4141
1991	6145	25	2331	3789
1992	6180	22	2312	3846
1993	7674	15	2313	5346
1994	7233	13	2205	5015
1995	5987	19	2111	3857
1996	5687	14	2103	3570
1997 (Previous road network)	5453	21	1979	3453
1997 (Total system) (c)	5693	28	2075	3590

(a) Collision reporting criteria changed (see page 3).

(b) Reporting area expanded to include new areas patrolled by the Hamilton-Wentworth Regional Police.

(c) Includes the roads transferred in 1997 and 1998 from the Province to the Region of Hamilton-Wentworth.

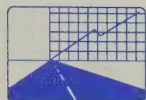


Exhibit 1.5

HISTORY OF PERSONAL INJURIES AND FATALITIES CAUSED BY MOTOR VEHICLE COLLISIONS

YEAR	TOTAL COLLISIONS	PERSONS INJURED	PERSONAL INJURIES/1,000 POPULATION	NUMBER OF FATALITIES	FATALITIES/100,000 POPULATION	FATALITIES/10,000 REGISTERED VEHICLES	
1963	9554	3075	11.6	27	10.2	3.0	
1964	9948	3305	11.9	32	11.5	3.4	
1965	10783	3824	13.4	27	9.5	2.6	
1966	9950	3746	12.6	28	9.8	2.6	
1967	9106	3484	12.2	39	13.7	3.6	
1968	8983	3574	12.8	22	7.9	1.9	
1969	9589	3768	12.7	19	6.4	1.6	
1970 (a)	7799	3717	12.3	23	7.5	2.0	
1971	7314	3876	12.5	23	7.0	1.9	
1972	8065	4055	13.5	46	15.3	3.4	(b)
1973	8499	4951	15.5	23	7.2	1.6	
1974 (c)	9599	4678	11.9	31	7.9	2.0	(b)
1975	9354	4474	11.2	26	6.5	1.6	(b)
1976	9146	3811	9.3	29	7.1	1.8	(b)
1977	10011	4513	11.0	34	8.3	2.0	(b)
1978 (a)	8636	4635	11.4	47	11.6	2.1	(d)
1979	8798	4923	12.1	42	10.3	2.2	(d)
1980	8305	4800	11.7	33	8.0	1.4	(d)
1981	8660	5015	12.3	31	7.6	1.1	(d)
1982	7663	4175	10.3	27	6.6	0.9	
1983	7268	4041	9.9	20	4.9	1.1	(e)
1984	7228	3855	9.5	18	3.8	0.8	(e)
1985 (a)	7346	4529	10.8	26	6.2	1.2	(e)
1986	7434	4758	11.3	21	5.0	0.9	(e)
1987	8140	5220	12.4	36	8.4	1.5	(e)
1988	9586	4898	11.4	29	6.8	1.2	(e)
1989	9566	5145	11.9	22	5.1	0.9	(e)
1990	6917	4053	9.4	30	6.9	1.2	(e)
1991	6415	3420	7.6	25	5.5	1.0	(d)
1992	6180	3439	7.5	23	5.0	0.8	(e)
1993	7674	3421	7.6	16	3.5	0.5	(e)
1994	7233	3213	7.4	13	2.8	0.4	(e)
1995	5987	3061	6.7	20	4.3	0.6	(e)
1996	5687	3066	6.6	14	2.9	0.4	(e)
1997 (f)	5693	3173	6.8	31	6.6	1.4	(e)

(a) Collision reporting criteria changed (see page 3).

(b) Registration estimated from total Ontario registrations.

(c) Reporting area expanded to include new areas patrolled by the Hamilton-Wentworth Regional Police.

(d) Registration data from licence information.

(e) Registration data from licence information for Wentworth County.

(f) Includes roads transferred in 1997 and 1998 from the Province to the Region of Hamilton-Wentworth.

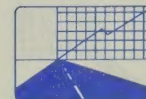


Exhibit 1.6

HISTORY OF PEDESTRIAN AND CYCLIST INJURIES AND FATALITIES

YEAR	COLLISIONS INVOLVING PEDESTRIANS (c)	PEDESTRIANS INJURED (a)	PEDESTRIAN FATALITIES	COLLISIONS INVOLVING CYCLISTS (c)	CYCLISTS INJURED (a)	CYCLIST FATALITIES
1967		537	17		113	0
1968		588	10		84	1
1969		602	6		91	2
1970		586	14		101	1
1971		570	13		155	2
1972		530	21		156	2
1973		569	9		197	1
1974 (b)		555	13		192	3
1975		513	11		235	0
1976		480	14		195	0
1977		503	10		193	3
1978		542	25		162	1
1979		464	15		177	4
1980		434	12		178	1
1981		458	10		159	1
1982		396	10		252	2
1983		387	5		200	2
1984		314	6		175	1
1985		410	3		239	2
1986	384	412	6	229	228	2
1987	379	383	14	244	244	2
1988	401	406	7	239	225	0
1989	411	403	7	164	154	3
1990	381	383	7	208	195	0
1991	332	330	10	193	185	3
1992	300	297	9	219	209	3
1993	299	291	4	201	183	0
1994	290	283	3	196	185	2
1995	293	286	8	163	152	1
1996	303	302	7	150	135	1
1997 (d)	294	286	11	158	140	1

(a) One or more pedestrian/cyclist could be involved and a fatality/injury may not have occurred. Includes injuries and fatalities.

(b) Prior to this year, reporting was for the City of Hamilton only.

(c) This information was not available until 1986.

(d) Includes roads transferred in 1997 and 1998 from the Province to the Region of Hamilton-Wentworth.

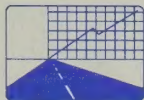


Exhibit 1.7

HISTORY OF ALCOHOL - RELATED MOTOR VEHICLE COLLISIONS

YEAR	TOTAL REPORTED COLLISIONS	TOTAL ALCOHOL- RELATED COLLISIONS	% OF TOTAL COLLISIONS INVOLVING ALCOHOL	% IMPAIRED OR HAD BEEN DRINKING DRIVERS UNDER THE AGE OF 21	TOTAL FATAL COLLISIONS	ALCOHOL- RELATED FATAL COLLISIONS (a)	% FATAL COLLISIONS HAVING ALCOHOL INVOLVED
1978	8636	1128	13.1	22.1	45	11	24.4
1979	8798	1139	12.9	22.1	39	5	12.8
1980	8305	929	11.2	18.7	33	11	33.3
1981	8660	1053	12.2	16.4	28	8	28.6
1982	7663	895	11.7	19.0	23	3	13.0
1983	7268	765	10.5	18.6	20	5	25.0
1984	7228	729	10.1	15.0	18	5	27.8
1985	7346	644	8.8	12.7	21	5	23.8
1986	7434	596	8.0	20.5	21	4	19.0
1987	8140	589	7.2	11.9	35	5	14.3
1988	9586	582	6.1	9.9	22	2	9.1
1989	9566	542	5.7	6.7	21	6	28.6
1990	6917	430	6.2	6.6	25	4	16.0
1991	6145	385	6.3	7.6	25	3	12.0
1992	6180	398	6.4	2.1	22	0	0.0
1993	7674	397	5.1	5.5	15	4	26.7
1994	7233	359	5.0	4.7	13	2	15.4
1995	5987	327	5.5	3.7	19	1	5.3
1996	5687	340	5.9	7.9	14	3	21.4
1997(b)	5693	304	5.3	7.8	28	2	7.1

(a) Includes drivers classified as impaired due to alcohol or classified as had been drinking.

(b) Includes roads transferred in 1997 and 1998 from the Province to the Region of Hamilton-Wentworth.

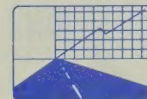


Exhibit 1.8

INJURY STATUS OF ALL PERSONS INVOLVED

DESCRIPTION OF PERSONS INVOLVED	PERSONS INVOLVED	PERSONAL INJURIES & FATALITIES	% OF PERSONS INJURED/ PERSONS INVOLVED	TYPE OF INJURY*			
				FATAL	MAJOR	MINOR	MINIMAL
DRIVER**	10050	1755	17.5%	15	74	692	974
CYCLIST	162	141	87.0%	1	10	60	70
PASSENGER	5489	980	17.9%	4	42	375	559
PEDESTRIAN	317	297	93.7%	11	42	121	123
TOTAL	16018	3173	19.8%	31	168	1248	1726

FOR APPROXIMATELY EVERY 29 RESIDENTS OF THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH, 1 PERSON WAS INVOLVED IN A MOTOR VEHICLE COLLISION IN 1997.

THERE WAS APPROXIMATELY A 1 IN 5 CHANCE THAT A PERSON INVOLVED IN A TRAFFIC COLLISION WOULD BE INJURED.

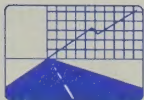
* Definitions of injury types:

Major: Person admitted to the hospital for treatment of injuries received in the collision.

Minor: Person went to the hospital for medical treatment but was released without being admitted.

Minimal: Person did not go to a hospital for medical treatment upon leaving the scene of the collision.

**does not include hit & run or Failed To Remain drivers.



INJURY STATUS OF ALL PERSONS INVOLVED

TOTAL CASES				ALL PERSONS INVOLVED			TOTAL PERSONS INVOLVED	
INJURY	DEATH	MAJOR	MINOR	DEATH	MAJOR	MINOR	DEATH	MAJOR
10	20	40	50	10	20	40	10	20
10	20	40	50	10	20	40	10	20
10	20	40	50	10	20	40	10	20
10	20	40	50	10	20	40	10	20
10	20	40	50	10	20	40	10	20
10	20	40	50	10	20	40	10	20

ANALYSIS OF THE DATA INDICATES THAT THE MAJORITY OF COLLISIONS INVOLVING PERSONS ARE OF THE FOLLOWING NATURE:

1. COLLISIONS INVOLVING PERSONS ARE OF THE FOLLOWING NATURE:

2. COLLISIONS INVOLVING PERSONS ARE OF THE FOLLOWING NATURE:

3. COLLISIONS INVOLVING PERSONS ARE OF THE FOLLOWING NATURE:

THE FOLLOWING TABLES SHOW THE DISTRIBUTION OF COLLISIONS INVOLVING PERSONS BY TYPE OF COLLISION AND BY SEVERITY OF INJURY.

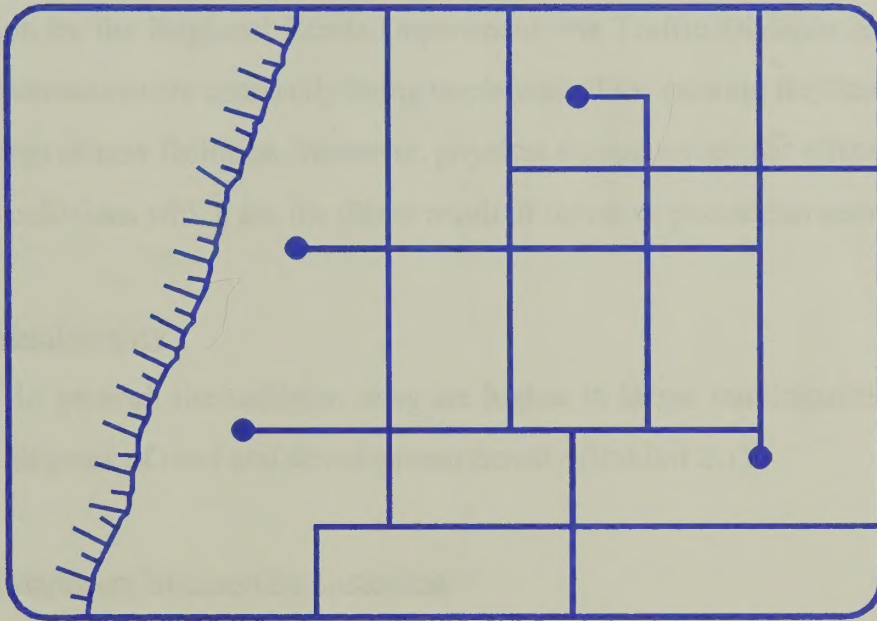
TABLE 1: DISTRIBUTION OF COLLISIONS INVOLVING PERSONS BY TYPE OF COLLISION AND BY SEVERITY OF INJURY.

TABLE 2: DISTRIBUTION OF COLLISIONS INVOLVING PERSONS BY TYPE OF COLLISION AND BY SEVERITY OF INJURY.

THE FOLLOWING TABLES SHOW THE DISTRIBUTION OF COLLISIONS INVOLVING PERSONS BY TYPE OF COLLISION AND BY SEVERITY OF INJURY.

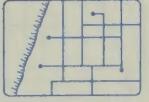
TABLE 3: DISTRIBUTION OF COLLISIONS INVOLVING PERSONS BY TYPE OF COLLISION AND BY SEVERITY OF INJURY.

TABLE 4: DISTRIBUTION OF COLLISIONS INVOLVING PERSONS BY TYPE OF COLLISION AND BY SEVERITY OF INJURY.



Chapter Two

Locations



Chapter 2

General

Locations that have high numbers or rates of collision occurrence receive regular attention by the Regional Roads Department, the Traffic Division and the Regional Police. Countermeasures are constantly being implemented for existing facilities and incorporated into the design of new facilities. However, physical alterations are not effective in preventing many traffic collisions which are the direct result of driver or pedestrian error.

Area Municipality

In general, the collision rates are higher in larger municipalities and with those with higher degrees of road and development density (Exhibit 2.1).

High Frequency Intersection Locations

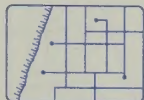
Exhibit 2.2 represents a list of the 46 locations which experienced the highest number of collision occurrences in 1997. All 1997 collisions occurring at traffic signals were subjected to the control chart analysis technique (Exhibit 2.3) which analyzes rates based on volumes of traffic. Exhibit 2.3 also provides a five-year average for each intersection.

Exhibits 2.4 and 2.5 show two-way stop locations and all-way stop locations with the highest collision rates.

These exhibits do not necessarily represent priority lists for improvements as other factors have to be taken into account such as cost-benefit considerations or the deployment of other collision countermeasures which may be more cost-effective.

In many cases, countermeasures have already been implemented or these locations are under consideration for various forms of improvement on a priority basis.

Exhibits 2.6 and 2.7 provide data on rates of collision occurrence on urban roadway sections, showing the 25 sections of major roadway with the highest rates. Exhibit 2.6 shows rates which are calculated including collisions at unsignalized intersections but excluding collisions at signalized intersections. Exhibit 2.7 shows rates which are calculated excluding any collisions occurring within 9 m of an intersection (signalized or unsignalized).



Exhibits 2.8 and 2.9 provide parallel data to 2.6 and 2.7 for rural roadway sections.

Comparison of Hamilton and Hamilton-Wentworth with other Cities

On the basis of total collisions per 1,000 population, Hamilton and Hamilton-Wentworth are very close to the lowest rates in Canada (Exhibit 2.10). On the basis of injury collisions per 1,000 population, the City and Region are better than average.

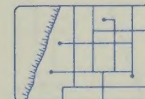


Exhibit 2.1

COLLISIONS vs AREA MUNICIPALITY

MUNICIPALITY	CLASS OF COLLISION (a)				COLLISION RATE PER 1,000 POP.(c)
	FATAL	NON-FATAL INJURY	PROPERTY DAMAGE ONLY	ALL COLLISIONS (b)	
ANCASTER	4	104	201	309	13.2
DUNDAS	1	57	102	160	6.9
FLAMBOROUGH	2	91	185	278	8.2
GLANBROOK	0	36	60	96	9.1
CITY OF HAMILTON	17	1559	2722	4298	13.3
STONEY CREEK	4	228	318	550	10.1
TOTAL FOR THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH	28	2075	3588	5691	12.2

(a) Collisions reported to the Hamilton-Wentworth Regional Police only; areas patrolled by the Provincial Police (e.g. Highway 403, Q.E.W.) are not included.

(b) Location data missing from a small number of collisions.

(c) Population figure extrapolated based on 1996 population data for each municipality.

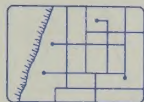
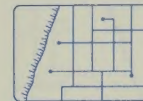


Exhibit 2.2

INTERSECTIONS WITH THE HIGHEST NUMBER OF COLLISIONS IN 1997 (a)

INTERSECTION (b)	TYPE OF TRAFFIC CONTROL	NUMBER OF COLLISIONS	5-YEAR AVERAGE
1 MAIN AND VICTORIA	TRAFFIC SIGNAL	29	15.6
2 CENTENNIAL & HWY 8/QUEENSTON (SC)	TRAFFIC SIGNAL	22	21.2
3 HWY 2 & HWY 53 (A)	TRAFFIC SIGNAL	20	16.4
4 DUNDURN & MAIN	TRAFFIC SIGNAL	17	17.4
5 DUNDURN & KING	TRAFFIC SIGNAL	16	17.0
6 GRAYS & HWY 8 (SC)	TRAFFIC SIGNAL	16	10.2
7 KENILWORTH & MAIN	TRAFFIC SIGNAL	16	13.8
8 STONE CHURCH & UPPER JAMES	TRAFFIC SIGNAL	15	9.6
9 BURLINGTON & PARKDALE	TRAFFIC SIGNAL	14	6.4
10 FENNELL/SCENIC & GARTH	TRAFFIC SIGNAL	14	11.2
11 HWY 20/HWY 53 & HWY 20 S N OF 53 (SC)	TRAFFIC SIGNAL	14	13.4
12 CANNON AND OTTAWA	TRAFFIC SIGNAL	13	7.2
13 GREENFORD/KENORA & QUEENSTON	TRAFFIC SIGNAL	13	10.0
14 HWY 5/HWY 8 & HWY 5/HWY 52/WESTOVER (F)	TRAFFIC SIGNAL	13	10.0
15 LOCKE & MAIN	TRAFFIC SIGNAL	13	10.2
16 NASH & QUEENSTON	TRAFFIC SIGNAL	13	16.2
17 GOLF LINKS/MOHAWK & MOH EB-E/S OFF RP (A)	TRAFFIC SIGNAL	12	6.4
18 JOHN & MAIN	TRAFFIC SIGNAL	12	12.4
19 QUEENSDALE & UPPER GAGE	TRAFFIC SIGNAL	12	11.4
20 BARTON & MACNAB	NB STOP	11	8.2
21 CENTENNIAL PARKWAY & SOUTH SERVICE	TRAFFIC SIGNAL	11	11.0
22 HUNTER & JOHN	TRAFFIC SIGNAL	11	12.0
23 HWY 20 S N OF 53 & MUD (SC)	TRAFFIC SIGNAL	11	16.0



INTERSECTION (b)	TYPE OF TRAFFIC CONTROL	NUMBER OF COLLISIONS	5-YEAR AVERAGE
24 KING & PARKDALE	TRAFFIC SIGNAL	11	10.6
25 KING & WELLINGTON	TRAFFIC SIGNAL	11	7.6
26 QUEENSTON & WALTER	TRAFFIC SIGNAL	11	5.8
27 CATHARINE & MAIN	TRAFFIC SIGNAL	10	8.0
28 DUNDURN & YORK	TRAFFIC SIGNAL	10	9.8
29 LOCKE & YORK	TRAFFIC SIGNAL	10	10.8
30 MOHAWK & UPPER GAGE	TRAFFIC SIGNAL	10	5.4
31 MOHAWK & UPPER WELLINGTON	TRAFFIC SIGNAL	10	9.2
32 ABERDEEN & DUNDURN	TRAFFIC SIGNAL	9	11.0
33 BARTON & CENTENNIAL PARKWAY	TRAFFIC SIGNAL	9	12.8
34 BURLINGTON & KENILWORTH	TRAFFIC SIGNAL	9	7.0
35 DUNDAS/GOVERNORS & MAIN/OSLER (D)	TRAFFIC SIGNAL	9	3.8
36 KING & MOUNT ALBION	TRAFFIC SIGNAL	9	7.2
37 KING & WENTWORTH	TRAFFIC SIGNAL	9	5.0
38 LONGWOOD & MAIN	TRAFFIC SIGNAL	9	8.4
39 MOHAWK & UPPER WENTWORTH	TRAFFIC SIGNAL	9	11.8
40 BARTON & JOHN	TRAFFIC SIGNAL	8	6.8
41 BARTON & KENILWORTH	TRAFFIC SIGNAL	8	8.8
42 BARTON & STRATHEARNE	TRAFFIC SIGNAL	8	8.4
43 BAY & HUNTER	TRAFFIC SIGNAL	8	3.6
44 BAY & MAIN	TRAFFIC SIGNAL	8	11.8
45 CANNON & KENILWORTH	TRAFFIC SIGNAL	8	8.6
46 CANNON & SHERMAN	TRAFFIC SIGNAL	8	5.4

(a) Only collisions occurring within 31 feet (9.5 m) of the intersection are defined as being "in" the intersection and are included in this list.

(b) All intersections are in the City of Hamilton unless otherwise indicated:

(A) Ancaster; (SC) Stoney Creek, (D) Dundas, (F) Flamborough

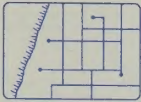
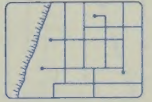


Exhibit 2.3

SIGNALIZED INTERSECTIONS WITH THE HIGHEST COLLISION RATES FROM 1993 to 1997

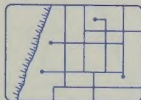
INTERSECTION	RL (a)	RC (b)	RL/RC	AVG. 3-YR AWDT (c)	NUMBER OF COLLISIONS					5-YR 1997 AVG.	COMMENT
					1993	1994	1995	1996	1997		
1 QUEENSDALE AV & UPPER GAGE AV	1.81	1.01	1.80	17986	7	10	14	14	12	11.4	(e)
2 KING WILLIAM ST & CATHARINE ST	1.75	1.51	1.16	5882	7	5	1	3	2	3.6	(d)
3 WILSON ST & JOHN ST	1.60	0.90	1.77	26531	20	13	12	21	8	14.8	(d)
4 HWY 53/HWY 56 & HWY 20 S N OF 53	1.38	0.89	1.55	27689	20	11	9	13	14	13.4	
5 MUD & HWY 20 S N OF 53	1.33	0.85	1.57	34353	20	24	10	15	11	16.0	(q)
6 HUNTER ST & JOHN ST	1.29	0.90	1.43	26547	7	12	12	18	11	12.0	(g,i)
7 CANNON ST & HUGHSON ST	1.26	0.99	1.28	19468	6	16	14	5	2	8.6	
8 BARTON ST & GAGE AVE	1.24	0.87	1.43	30898	21	15	12	15	4	13.4	(f)
9 ABERDEEN AVE & DUNDURN ST	1.19	0.91	1.32	26347	15	12	11	8	9	11.0	(p)
10 LIMERIDGE RD & WEST 5th ST	1.17	1.11	1.05	13186	9	7	3	6	2	5.4	
11 CANNON ST & GAGE AVE	1.16	0.94	1.23	22693	13	11	8	8	6	9.2	(h)
12 QUEENSTON RD & NASH RD	1.16	0.82	1.42	39965	20	9	19	20	13	16.2	(o)
13 LIMERIDGE RD & GARTH ST	1.15	0.95	1.21	21860	12	16	11	5	0	8.8	(d)
14 BARTON ST & BAY ST	1.15	1.23	0.93	9972	4	3	4	6	3	4.0	
15 QUEENSDALE AV & U. WENTWORTH	1.11	1.15	0.96	11889	5	5	7	1	5	4.6	
16 KENTLEY DR & NASH RD	1.10	1.08	1.02	14623	3	3	5	14	3	5.6	(j)
17 BARTON ST & QUEEN/STUART S	1.07	1.25	0.86	9609	4	6	4	3	1	3.6	
18 BARTON ST & JOHN ST	1.07	1.01	1.06	18158	10	4	8	4	8	6.8	(g)
19 MAIN ST & VICTORIA AVE	1.07	0.81	1.32	41797	20	13	9	7	29	15.6	
20 MUD ST & PARAMOUNT DR	1.06	1.00	1.06	18349	7	5	8	6	8	6.8	
21 KING ST & PARKDALE AVE	1.04	0.88	1.18	29213	7	5	16	14	11	10.6	(n)
22 QUEENSTON RD & CENTENNIAL PK	1.02	0.75	1.36	59690	16	24	22	22	22	21.2	
23 WILSON ST & HUGHSON ST	1.01	1.00	1.01	18645	8	11	2	5	7	6.6	
24 HUNTER ST & CAROLINE ST	1.01	1.38	0.73	7386	2	4	5	0	2	2.6	



INTERSECTION	RL (a)	RC (b)	RL/RC	AVG. 3-YR AWDT (c)	NUMBER OF COLLISIONS					COMMENT
					1993	1994	1995	1996	1997 AVG.	
25 KING ST & DUNDURN ST	1.00	0.78	1.28	48689	16	22	20	11	16	17.0
26 GOLFLINKS/MOH & MOHAWK/STONE	1.00	1.00	0.99	18368	6	1	5	8	12	6.4 (r)
27 BARTON ST & STRATHEARNE A	0.99	0.93	1.07	24211	3	12	6	13	8	8.4
28 CHARLTON AVE & HESS ST	0.99	1.23	0.80	9856	5	6	1	3	2	3.4 (g)
29 MAIN ST & MACKLIN ST	0.99	0.96	1.03	21474	6	8	7	8	8	7.4
30 BURLINGTON ST & PARKDALE AVE	0.97	0.99	0.97	18880	3	3	5	7	14	6.4
31 HWY 2 (A) & HWY 53	0.97	0.78	1.24	48515	18	13	16	15	20	16.4
32 LAWRENCE RD & ROSEDALE AVE	0.97	1.16	0.84	11854	5	2	6	4	3	4.0
33 MAIN ST & PARKDALE AVE	0.95	1.01	0.94	18086	14	5	2	4	5	6.0
34 CANNON ST & OTTAWA ST	0.94	0.95	0.98	22010	7	7	4	5	13	7.2
35 BARTON ST & WOODWARD AVE	0.92	0.88	1.04	29374	14	8	6	13	6	9.4
36 KING ST (SC) & GREEN RD	0.91	1.12	0.82	13136	4	5	6	5	1	4.2
37 YORK BLVD & HESS ST	0.91	0.99	0.93	19435	6	8	5	5	7	6.2
38 MAIN ST & DUNDURN ST	0.90	0.76	1.19	55018	24	17	17	12	17	17.4 (k)
39 BURLINGTON ST & KENILWORTH AV	0.89	0.95	0.94	22430	7	4	7	8	9	7.0
40 BARTON ST & WENTWORTH ST	0.89	0.94	0.95	23224	6	11	7	8	4	7.2
41 CANNON ST & JAMES ST	0.86	0.88	0.98	29118	9	14	9	5	7	8.8
42 YORK BLVD & LOCKE ST	0.86	0.84	1.03	35780	6	15	12	11	10	10.8 (h)
43 HWY 8 & GRAYS (SC)	0.85	0.85	1.00	34330	11	9	10	5	16	10.2
44 FENNELL AVE & GARTH ST	0.84	0.83	1.02	38161	9	11	9	13	14	11.2
45 MAIN ST & KENILWORTH AV	0.83	0.79	1.06	47304	8	13	13	19	16	13.8
46 QUEENSTON RD & GREENFORD/KEN	0.82	0.84	0.97	34778	13	11	8	5	13	10.0
47 BARTON ST & WELLINGTON ST	0.80	0.90	0.89	27202	9	13	7	4	5	7.6
48 LIMERIDGE RD & UPPER GAGE AV	0.80	0.85	0.94	34124	14	13	4	7	*	9.5 (m)
49 RENNIE ST & WOODWARD AVE	0.78	1.10	0.71	13903	1	5	3	5	5	3.8
50 MAIN ST & JOHN ST	0.78	0.79	0.99	45387	12	14	13	11	12	12.4 (l)

OVERALL STAT. FOR ALL SIGNAL INTERSECTIONS: 0.48 4.4

NUMBER OF HAMILTON-WENTWORTH TRAFFIC SIGNAL INTERSECTIONS IN 1997 = 423



Notes:

- (a) RL is the number of collisions, per million vehicles entering the intersection, occurring within 31 feet of an individual intersection.
- (b) RC is a volume-adjusted critical rate. If RL exceeds RC (ie. RL/RC is greater than 1.0), one can state with 95 percent confidence that the collision rate at the intersection in question is significantly higher than would normally be expected.

$$RC = Ra + K(\text{the square root of: } (Ra/m)) + (0.5/m)$$

Where: Ra = systemwide average collision rate for all traffic signal locations (0.475 collisions per million vehicle entries)
K = constant (=1.65 for 95 % confidence level)
m = vehicle exposure at the location in million vehicles entering per year (AWDTx349.6/1,000,000)

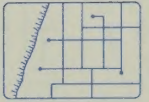
- (c) AWDT - Average Weekday Daily Traffic (total vehicles entering the intersection).
- (d) Improved signal timing or phasing in 1996.
- (e) Run as separate phase for part of 1997, then NB/SB left-turn lanes added through reconstruction.
- (f) Referred to Transportation Dept. (Roads Division) for NB/SB left-turn lane design and programming.
- (g) Improved signal display in 1996.
- (h) Referred to Transportation Dept. (Roads Division) for EB/WB left-turn lane design and programming.
- (i) Improved signing in 1996.
- (j) Signal phasing changed in 1997.
- (k) Signing design under review.
- (l) Installation of delineation to discourage illegal movements installed in 1990.
- (m) This intersection no longer exists due to the construction of the Lincoln Alexander Parkway.
- (n) Added NB/SB left turn lanes in 1996.
- (o) Added NB/SB left turn lane in 1997.
- (p) Signal phasing under review.
- (q) Protected only left-turn phasing approved for installation in 1998.
- (r) Lane designation signing added in 1998.

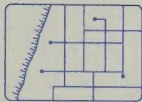
* Data not applicable

Exhibit 2.4

TWO-WAY STOP INTERSECTIONS WITH THE HIGHEST COLLISION RATES FROM 1993 TO 1997

INTERSECTION		AVG. 3-YR			NUMBER OF COLLISIONS					5-YR 1997 AVG.	COMMENT	
		RL (a)	RC (b)	RL/RC	AWDT (c)	1993	1994	1995	1996			
1	CATHARINE & REBECCA	5.59	1.71	3.27	4813	12	11	9	12	3	9.40	
2	PARK ST & VINE ST	3.32	2.15	1.54	2925	7	3	5	0	2	3.40	(d,e)
3	BOOK RD & FIDDLERS GREEN	2.62	1.35	1.94	8501	5	8	11	9	6	7.80	(d,s,u)
4	FERGUSON AVE & JACKSON ST	2.62	2.11	1.24	3053	4	1	2	4	3	2.80	
5	BARTON ST & MACNAB ST	2.62	1.33	1.97	8966	8	10	10	2	11	8.20	(d,w)
6	HUGHSON ST & REBECCA ST	2.54	1.67	1.52	5061	4	5	*	*	4.50	(l)	
7	CARLUKE RD & FIDDLERS GREEN	2.16	1.47	1.47	6902	1	6	8	5	6	5.20	(d,t,v)
8	MACNAB (H) & VINE	2.10	2.13	0.99	3000	1	3	1	3	3	2.20	
9	CATHARINE ST & JACKSON ST	2.07	1.34	1.55	8754	6	8	5	*	6.33	(h,i,j,k)	
10	HUGHSON ST & JACKSON ST	2.00	1.68	1.19	5015	5	2	*	*	3.50	(l)	
11	HUNTER ST & WALNUT ST	1.80	1.52	1.19	6341	3	4	5	2	6	4.00	
12	CAROLINE & CHARLTON	1.80	1.37	1.32	8244	9	4	5	5	3	5.20	(f,g)
13	CAROLINE & MARKET	1.66	1.83	0.91	4135	1	2	3	3	3	2.40	
14	KENILWORTH AC & MOUNTAIN BROW	1.61	1.16	1.39	13112	14	5	8	6	4	7.40	
15	FERGUSON AVE & YOUNG	1.40	1.93	0.73	3669	2	2	1	1	3	1.80	
16	FIRST RD E & MUD	1.31	1.37	0.96	8306	1	3	10	1	4	3.80	
17	CHARLTON AVE & HUGHSON ST	1.24	1.31	0.94	9241	3	4	5	*	4.00	(n)	
18	MUD & SECOND RD E	1.08	1.57	0.69	5800	1	1	3	2	4	2.20	
19	CANNON ST & MACNAB ST	1.01	1.01	1.00	20370	10	11	9	2	4	7.20	(m)
20	HESS & JACKSON	1.00	1.38	0.72	8000	4	4	0	2	4	2.80	
21	FIDDLERS GREEN & JERSEYVILLE RD	0.99	1.51	0.65	6383	4	3	2	2	0	2.20	
22	FOREST AVE & HUGHSON ST	0.94	1.70	0.56	4850	5	0	0	2	1	1.60	
23	BARNESDALE AV & CANNON ST	0.91	1.14	0.80	13759	6	4	6	5	1	4.40	
24	MAIN ST (F) & PARKSIDE DR	0.91	1.42	0.64	7558	3	4	2	2	1	2.40	(i)





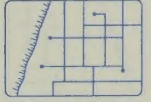
INTERSECTION	RL (a)	RC (b)	RL/RC	AVG. 3-YR AWDT (c)	NUMBER OF COLLISIONS					COMMENT
					1993	1994	1995	1996	1997	
25 FIFTY & HWY 8 (SC)	0.86	1.31	0.66	9278	3	2	2	1	6	2.80
26 FENNEL & SOUTHWOOD	0.84	1.47	0.57	6838	2	2	2	1	3	2.00
27 HAMILTON & WILSON ST/HWY	0.83	1.33	0.63	8915	2	4	4	2	1	2.60
28 RUTHERFORD & WENTWORTH	0.80	1.35	0.60	8531	2	2	1	3	4	2.40
29 BARTON (S) & JONES RD	0.78	1.57	0.50	5862	0	2	1	2	3	1.60
30 KING ST & PARADISE RD	0.76	0.99	0.77	22584	6	8	8	6	2	6.00
31 KING ST & WEST AVE	0.76	0.97	0.78	24139	5	10	3	7	7	6.40
32 HUGHSON ST & YOUNG ST	0.75	1.41	0.53	7646	1	2	2	1	4	2.00
33 CHARLTON AVE & VICTORIA AVE	0.75	1.10	0.68	15318	4	1	3	5	7	4.00
34 DELAWARE & SANFORD	0.70	1.25	0.56	10565	1	4	3	1	4	2.60
35 NEBO RD (G) & WHITE CHURCH	0.68	2.01	0.34	3361	0	1	2	0	1	0.80
36 CAROLINE ST & HERKIMER ST	0.65	1.18	0.55	12412	1	5	2	4	2	2.80
37 REDMOND & STONE CHURCH	0.64	1.16	0.56	13314	4	2	*	*	*	3.00
38 BARTON ST & HUGHSON ST	0.64	1.13	0.56	14410	4	2	2	4	4	3.20
39 CHARLTON & MACNAB (H)	0.62	1.23	0.50	11142	2	2	4	1	3	2.40
40 AUGUSTA ST & JOHN ST	0.62	1.01	0.61	20455	3	4	5	3	7	4.40
41 JAMES ST & ROBERT ST	0.60	1.30	0.46	9493	3	1	0	3	3	2.00
42 FOREST (H) & JOHN (H)	0.60	1.02	0.59	20096	5	5	2	3	6	4.20
43 HERKIMER ST & MACNAB ST	0.58	1.20	0.48	11806	4	1	2	3	2	2.40
44 DUNSMURE & OTTAWA	0.57	1.19	0.48	12100	1	4	2	1	4	2.40
45 STEVEN ST & WILSON ST	0.55	1.18	0.47	12470	3	2	3	3	1	2.40
46 GARTH ST & SANATORIUM RD	0.54	1.03	0.52	19517	5	3	3	*	*	3.67
47 BRUCEDALE & U. WELLINGTON	0.53	1.00	0.53	21650	3	7	4	1	5	4.00
48 BRUCEDALE & UPPER JAMES	0.51	0.96	0.53	24804	9	2	6	1	4	4.40
49 KING (H) & TISDALE ST	0.50	0.96	0.52	25307	4	2	5	8	3	4.40
50 KING ST & PAISLEY AVE	0.48	1.13	0.43	14162	4	1	5	0	2	2.40

OVERALL STATISTICS FOR INTERSECTIONS:

0.50

2.2

NUMBER OF HAMILTON-WENTWORTH 2 WAY-STOP INTERSECTIONS WITH MEASURED TRAFFIC VOLUMES 1997 = 187



Notes:

- (a) RL is the number of collisions, per million vehicles entering the intersection, occurring within 31 feet of an individual intersection.
- (b) RC is a volume-adjusted critical rate. If RL exceeds RC (ie. RL/RC is greater than 1.0), one can state with 95 percent confidence that the collision rate at the intersection in question is significantly higher than would normally be expected.

$$RC = Ra + K(\text{the square root of: } (Ra/m)) + (0.5/m)$$

Where: Ra = systemwide average collision rate for all 2-way stop locations (0.505 collisions per million vehicle entries)
 K = constant (=1.65 for 95 % confidence level)
 m = vehicle exposure at the location in million vehicles entering per year (AWDTx349.6/1,000,000)

- (c) AWDT - Average Weekday Daily Traffic
 (total vehicles entering the intersection).
- (d) Improved signing in 1995.
- (e) Installed No Stopping zone to improve visibility in 1996.
- (f) Installed No Stopping zone to improve visibility in 1995.
- (g) Moved hydro pole to improve visibility in 1996.
- (h) Converted to All-Way Stop in 1996.
- (i) Improved signing in 1996.
- (j) Improved lane markings in 1996.
- (k) Installed overhead flasher in 1996.
- (l) Converted to All-Way Stop in 1995.
- (m) Lane markings to be improved in 1997.
- (n) Converted to Intersection Pedestrian Signal in 1996.
- (o) Relocated flasher on curve on island in 1997.
- (p) Installed raised pavement markers on curb edge in 1997.
- (q) Intersection contains sharp curve.
- (r) Converted to Traffic Signal in 1995.
- (s) Removed trees to improve visibility in 1995.
- (t) Improved signing in 1997.
- (u) Signalized in 1998.
- (v) Revised flashers in 1997.
- (w) Visibility to be improved in 1998.

* Data not applicable.

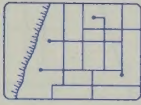


Exhibit 2.5

ALLWAY-STOP INTERSECTIONS WITH THE HIGHEST COLLISION RATE FROM 1993 TO 1997

INTERSECTION		AVG. 3-YR AWDT (c)		NUMBER OF COLLISIONS					5-YR 1997 AVG.		COMMENT
		RL (a)	RC (b)	RL/RC	1993	1994	1995	1996	1997		
1	ELMIRA/HORNING & HORNING/UP HOR	2.41	4.57	0.53	3	1	0	0	0	0.8	(e)
2	BIRGE & CHEEVER	1.30	3.80	0.34	0	0	0	0	3	0.6	
3	HUGHSON & REBECCA	1.13	2.00	0.56	*	*	*	2	2	2.0	(h)
4	CATHARINE & JACKSON	0.98	1.64	0.60	*	*	*	*	3	3.0	(i)
5	HUGHSON ST & KING WILLIAM ST	0.67	2.43	0.28	*	2	1	0	0	0.8	(f),(g)
6	DALEWOOD & STERLING	0.64	2.10	0.30	1	1	0	0	3	1.0	
7	BEACH & ROWANWOOD (H)	0.56	2.37	0.24	*	*	0	0	2	0.7	
8	LANDRON & UP. KENILWORTH	0.53	2.42	0.22	0	1	0	0	2	0.6	
9	MOHAWK RD & UP. KENILWORTH	0.53	1.72	0.31	2	3	1	0	1	1.4	
10	AIRPORT RD & HOMESTEAD DR	0.38	1.86	0.20	2	0	2	0	0	0.8	
11	SANATORIUM RD & UPPER PARADISE	0.37	1.53	0.24	4	1	0	1	1	1.4	
12	HUCKLEBERRY & LAKE AVE	0.36	1.69	0.21	0	2	1	1	1	1.0	
13	PARAMOUNT & UPPER MT ALBION	0.35	1.58	0.22	0	0	3	0	3	1.2	
14	STONE CHURCH & UPPER SHERMAN	0.32	1.32	0.24	2	2	*	*	*	2.0	(d)
15	GREENHILL AVE & QUIGLEY RD	0.32	1.62	0.20	0	3	0	1	1	1.0	
16	FORSYTH AVE & KING ST	0.20	1.64	0.12	2	0	1	0	0	0.6	

OVERALL STATISTICS FOR INTERSECTIONS:

0.69

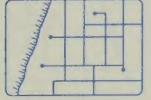
1.2

NUMBER OF HAMILTON-WENTWORTH ALL-WAY STOP INTERSECTIONS WITH TRAFFIC VOLUME IN

1997

=

16



Notes:

- (a) RL is the number of collisions, per million vehicles entering the intersection, occurring within 31 feet of an individual intersection.
- (b) RC is a volume-adjusted critical rate. If RL exceeds RC (ie. RL/RC is greater than 1.0), one can state with 95 percent confidence that the collision rate at the intersection in question is significantly higher than would normally be expected.

$$RC = Ra + K(\text{the square root of: } (Ra/m)) + (0.5/m)$$

Where: Ra = systemwide average collision rate for all all-way stop locations (0.690 collisions per million vehicle entries)
 K = constant (=1.65 for 95 % confidence level)
 m = vehicle exposure at the location in million vehicles entering per year (AWDTx349.6/1,000,000)

- (c) AWDT - Average Weekday Daily Traffic (total vehicles entering the intersection).
- (d) Converted to Traffic Signal in 1995.
- (e) Upper Horning closed at Freeway in 1995.
- (f) Improved WB stop sign visibility in 1995.
- (g) Converted to all way stop in 1993.
- (h) Converted to all way stop in 1995.
- (i) Converted to all way stop in April 1996.

* Data not applicable.

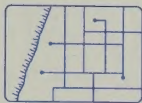


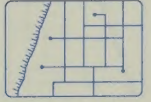
Exhibit 2.6

URBAN ROAD SECTIONS* WITH THE HIGHEST COLLISION RATES **FROM 1993 TO 1997** **SIGNALIZED INTERSECTIONS NOT INCLUDED**

	ARTERIAL STREET	From	To	Number of Collisions	RL	RC	Ratio	Link (Km)	Volume (AWDT)	Million Veh-Km/Yr
1	MARKLAND	QUEEN H	JAMES ST H	26	13.68	6.81	2.01	0.823	1331	0.38
2	BARTON H	QUEEN H	JAMES ST H	81	8.27	3.71	2.23	0.872	6429	1.96
3	RYMAL	WEST 5TH	UPPER JAMES	71	7.72	3.78	2.04	0.350	15000	1.84
4	WENTWORTH	CHARLTON	DELAWARE	42	7.37	4.39	1.68	0.351	9250	1.14
5	FIDDLER GREEN	WILSON A	JERSEYVILLE	13	7.03	6.89	1.02	0.208	5082	0.37
6	CHARLTON	JAMES ST H	JOHN H	33	6.53	4.58	1.43	0.244	11854	1.01
7	MAIN H	KENILWORTH	BERRY AV	219	6.41	2.78	2.31	0.702	27821	6.83
8	QUEEN H	ABERDEEN H	HERKIMER	39	5.91	4.18	1.41	0.282	13341	1.32
9	PARADISE	KING H	MAIN H	45	5.33	3.87	1.38	0.335	14448	1.69
10	BARTON H	GAGE	OTTAWA	151	5.28	2.87	1.84	0.860	19014	5.72
11	BARTON H	WELLINGTON H	WENTWORTH	127	5.01	2.94	1.70	0.872	16630	5.07
12	JAMES ST H	MURRAY	BURLINGTON	52	5.00	3.65	1.37	0.890	6687	2.08
13	FENNEL	UPPER KENILWORTH	MOUNTAIN BROW BL	15	4.92	5.54	0.89	0.250	7000	0.61
14	KING H	PARADISE	NEWTON H	104	4.91	3.06	1.60	0.781	15525	4.24
15	WENTWORTH	DELAWARE	KING H	31	4.84	4.22	1.15	0.500	7302	1.28
16	KING H	WELLINGTON H	WENTWORTH	186	4.78	2.72	1.76	0.866	25744	7.79
17	STINSON ST	VICTORIA AV H	WENTWORTH	27	4.78	4.40	1.09	0.665	4875	1.13
18	JAMES ST H	BARTON H	MURRAY	8	4.71	7.17	0.66	0.120	8176	0.34
19	CHARLTON	QUEEN H	JAMES ST H	60	4.56	3.42	1.33	0.823	9143	2.63
20	BARTON H	JAMES ST H	WELLINGTON H	80	4.42	3.17	1.39	0.836	12403	3.62
21	SHERMAN AV	MAIN H	KING H	30	4.32	4.11	1.05	0.427	9341	1.39
22	KENILWORTH	KENILWORTH ACCESS	MAIN H	136	4.30	2.82	1.52	0.695	26018	6.32
23	KING H	QUEEN H	JAMES ST H	151	4.20	2.76	1.52	0.860	23917	7.19
24	BARTON H	SHERMAN AV	GAGE	107	4.08	2.92	1.40	0.872	17228	5.25
25	DELAWARE	WENTWORTH	SHERMAN AV	47	4.07	3.54	1.15	0.854	7729	2.31
OVERALL STATISTICS FOR ALL ARTERIAL STREETS:					1.85					

OVERALL STATISTICS FOR ALL ARTERIAL STREETS:

* URBAN ROAD SECTIONS ARE DEFINED AS THOSE HAVING CURB AND GUTTER.



Notes:

- (a) RL is the number of collisions, per million vehicles-km per year
- (b) RC is a volume-distance adjusted critical rate. If RL exceeds RC (ie. RL/RC is greater than 1.0), one can state with 95 percent confidence that the collision rate at the location in question is significantly higher than would normally be expected.
- $RC = Ra + K(\text{the square root of: } (Ra/m)) + (0.5/m)$
- Where: Ra = systemwide average collision rate for all locations of the same category (1.85 collisions per million vehicle-km per year)
 K = constant (=1.65 for 95 % confidence level)
 m = vehicle exposure at the location in million vehicles-km per year (AWDTx349.6xLink/1,000,000)

(c) AWDT is Average Weekday Daily Traffic.

(d) Link is the road section distance in km.

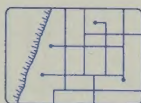


Exhibit 2.7

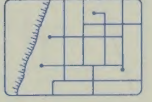
URBAN ROAD SECTIONS* WITH THE HIGHEST COLLISION RATES **FROM 1993 TO 1997** **INTERSECTIONS NOT INCLUDED**

	ARTERIAL STREET	From	To	Number of Collisions	RL	RC	Ratio	Link (Km)	Volume (AWDT)	Million Veh-Km/Yr
1	RYMAL	WEST 5TH	UPPER JAMES	71	7.72	2.74	2.82	0.350	15000	1.84
2	KING H	QUEEN H	JAMES ST H	151	4.20	1.89	2.22	0.860	23917	7.19
3	CHARLTON	JAMES ST H	JOHN H	18	3.56	3.42	1.04	0.244	11854	1.01
4	KENILWORTH	KENILWORTH ACCESS	MAIN H	95	3.01	1.94	1.55	0.695	26018	6.32
5	CENTENNIAL PKWY	KING H	QUEENSTON H	149	2.99	1.77	1.69	1.043	27311	9.96
6	BRAMPTON	STRATHEARNE AV	PARKDALE	13	2.89	3.59	0.81	0.720	3582	0.90
7	HWY 8 S	DONN	GRAYS S	53	2.80	2.20	1.27	0.450	24000	3.78
8	HWY 2	HWY 53	HAMILTON DR	91	2.71	1.92	1.41	2.400	8000	6.71
9	BARTON H	GAGE	OTTAWA	77	2.69	1.99	1.35	0.860	19014	5.72
10	JAMES ST H	ST JOSEPHS	KING N BRANCH	71	2.68	2.03	1.32	0.968	15642	5.29
11	KING H	CATHARINE	WELLINGTON H	57	2.68	2.41	1.25	0.531	22968	4.26
12	KING H	WELLINGTON H	WENTWORTH	103	2.64	1.86	1.42	0.866	25744	7.79
13	MARKLAND	QUEEN H	JAMES ST H	5	2.63	5.36	0.49	0.823	1331	0.38
14	SANFORD	KING H	BARTON H	16	2.60	3.17	0.82	0.787	4454	1.23
15	MAIN H	KENILWORTH	BERRY AV	88	2.58	1.91	1.35	0.702	27821	6.83
16	BARTON H	WELLINGTON H	WENTWORTH	65	2.56	2.05	1.25	0.872	16630	5.07
17	BARTON H	JAMES ST N	WELLINGTON H	46	2.54	2.23	1.14	0.836	12403	3.62
18	JAMES ST H	KING N BRANCH	BARTON H	42	2.46	2.27	1.08	0.860	11382	3.42
19	SHERMAN AV	MAIN H	KING H	17	2.45	3.03	0.81	0.427	9341	1.39
20	BAY	KING H	CANNON	20	2.44	2.85	0.86	0.450	10444	1.64
21	QUEENSTON S	REGIONAL LIMITS	DONN	156	2.39	1.69	1.41	1.500	24851	13.03
22	RYMAL	UPPER WENTWORTH	UPPER SHERMAN	40	2.38	2.28	1.04	0.800	12000	3.36
23	BARTON H	OTTAWA	KENILWORTH	61	2.33	2.03	1.15	0.860	17421	5.24
24	BARTON H	SHERMAN AV	GAGE	60	2.29	2.03	1.13	0.872	17228	5.25
25	MAIN H	JAMES ST H	WELLINGTON H	106	2.27	1.79	1.27	0.866	30794	9.32

OVERALL STATISTICS FOR ALL ARTERIAL STREETS:

1.16

* URBAN ROAD SECTIONS ARE DEFINED AS THOSE HAVING CURB AND GUTTER.



Notes:

- (a) RL is the number of collisions, per million vehicles-km per year
- (b) RC is a volume-distance adjusted critical rate. If RL exceeds RC (ie. RL/RC is greater than 1.0), one can state with 95 percent confidence that the collision rate at the location in question is significantly higher than would normally be expected.
- RC = $Ra + K(\text{the square root of: } (Ra/m)) + (0.5/m)$
- Where: Ra = systemwide average collision rate for all locations of the same category (1.16 collisions per million vehicle-km per year)
 K = constant (=1.65 for 95 % confidence level)
 m = vehicle exposure at the location in million vehicles-km per year (AWDTx349.6xLink/1,000,000)

(c) AWDT is Average Weekday Daily Traffic.

(d) Link is the road section distance in km.

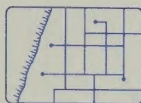


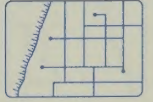
Exhibit 2.8

RURAL ROAD* SECTIONS WITH THE HIGHEST COLLISION RATES FROM 1993 TO 1997 SIGNALIZED INTERSECTIONS NOT INCLUDED

	ARTERIAL STREET	From	To	Number of Collisions	RL	RC	Ratio	Link (Km)	Volume (AWDT)	Million Veh-Km/Yr
1	RIDGE RD	HWY 20 S N OF 53	NEW MOUNTAIN	50	16.39	4.11	3.99	2.426	724	0.61
2	SHEFFIELD RD	HWY 8 F	SAFARI	2	10.00	22.20	0.45	0.314	345	0.04
3	11TH CON	FREELTON	HWY 6 F	1	10.00	38.27	0.26	0.090	735	0.02
4	GLOVER S	HWY 8 S	SOUTH SERVICE	11	8.15	6.26	1.30	0.609	1249	0.27
5	WOODHILL SIDE	HWY 5	4TH CON	4	8.00	11.54	0.69	0.531	557	0.10
6	SHEFFIELD RD	5TH CON	HWY 8 F	5	7.69	9.71	0.79	0.825	447	0.13
7	SHEFFIELD RD	4TH CON	5TH CON	3	7.50	13.43	0.56	0.511	421	0.08
8	HALL	BLACKHEATH	HWY 56	8	7.27	7.03	1.03	0.300	2100	0.22
9	MILES RD H	CITY LIMITS	RYMAL	20	6.90	4.21	1.64	0.550	3000	0.58
10	FIFTY	HWY 8 S	SOUTH SERVICE	34	6.80	3.31	2.05	0.797	3587	1.00
11	GLANCASTER	CARLUKE	AIRPORT	8	6.67	6.69	1.00	1.471	458	0.24
12	DICKENSON	MILES RD G	NEBO G	17	6.30	4.36	1.44	1.745	893	0.54
13	SHERMAN CUT	CROCKETT	SHERMAN ACCESS	99	5.50	2.13	2.58	0.362	28408	3.60
14	CARLUKE	FIDDER'S GREEN	GLANCASTER	30	5.36	3.16	1.70	1.067	2996	1.12
15	ELEVENTH RD	MUD	GREEN MOUNTAIN	12	5.22	4.72	1.11	1.118	1172	0.46
16	UPPER MT ALBION	HWY 53	PARAMOUNT	27	4.78	3.15	1.52	1.172	2754	1.13
17	FLETCHER	KIRK G	BINBROOK	5	4.76	7.23	0.66	1.887	317	0.21
18	HWY 97	BROCK RD	HWY 6 F	11	4.49	4.57	0.98	0.474	2941	0.49
19	MILLEN RD	BARTON S	SOUTH SERVICE	29	4.36	2.96	1.47	1.039	3670	1.33
20	MUD	ARBOUR	PARAMOUNT	107	4.09	1.94	2.11	0.825	18127	5.23
21	CENTRE	11TH CON	CAMPBELLVILLE	15	4.05	3.77	1.07	1.456	1462	0.74
22	MILLGROVE SIDE	4TH CON	HWY 6 F	21	4.04	3.26	1.24	2.696	1106	1.04
23	UPPER SHERMAN	RYMAL	STONE CHURCH	27	4.03	2.95	1.37	0.985	3892	1.34
24	FLETCHER RD	BINBROOK	GUYATT	9	4.00	4.77	0.84	2.084	618	0.45
25	FLETCHER RD	GOLF CLUB G	HWY 53	13	3.88	3.94	0.98	2.117	902	0.67
OVERALL STATISTICS FOR ALL ARTERIAL STREETS:				1.09						

OVERALL STATISTICS FOR ALL ARTERIAL STREETS:

* RURAL ROAD SECTIONS ARE DEFINED AS THOSE WITH SHOULDERS AND DITCHES



Notes:

- (a) RL is the number of collisions, per million vehicles-km per year
 - (b) RC is a volume-distance adjusted critical rate. If RL exceeds RC (ie. RL/RC is greater than 1.0), one can state with 95 percent confidence that the collision rate at the location in question is significantly higher than would normally be expected.
- $$RC = Ra + K(\text{the square root of: } (Ra/m)) + (0.5/m)$$
- Where: Ra = systemwide average collision rate for all locations of the same category (1.09 collisions per million vehicle-km per year)
 K = constant (=1.65 for 95 % confidence level)
 m = vehicle exposure at the location in million vehicles-km per year (AWDTx349.6xLink/1,000,000)

(c) AWDT is Average Weekday Daily Traffic.

(d) Link is the road section distance in km.

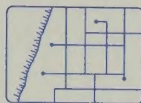


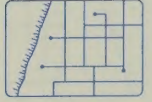
Exhibit 2.9

RURAL ROAD* SECTIONS WITH THE HIGHEST COLLISION RATES FROM 1993 TO 1997 INTERSECTIONS NOT INCLUDED

ARTERIAL STREET	From	To	Number of Collisions	RL	RC	Ratio	Link (Km)	Volume (AWDT)	Million Veh-Km/Yr
1 11TH CON	FREELTON	HWY 6 F	1	10.00	34.47	0.29	0.090	735	0.02
2 SHEFFIELD RD	5TH CON	HWY 8 F	4	6.15	7.91	0.78	0.825	447	0.13
3 SHEFFIELD RD	HWY 8 F	SAFARI	1	5.00	19.36	0.26	0.314	345	0.04
4 WOODHILL SIDE	HWY 5	4TH CON	2	4.00	9.55	0.42	0.531	557	0.10
5 SHERMAN CUT	CROCKETT	SHERMAN ACCESS	53	2.94	1.38	2.13	0.362	28408	3.60
6 RIDGE RD	HWY 20 S OF 53	NEW MOUNTAIN	8	2.62	3.01	0.87	2.426	724	0.61
7 GLANCASTER	CARLUKE	AIRPORT	3	2.50	5.23	0.48	1.471	458	0.24
8 CENTRE	5TH CON	6TH CON	38	2.07	1.37	1.51	1.749	6003	3.67
9 MUD	MOUNT ALBION	UPPER MT ALBION	24	1.96	1.59	1.23	0.500	14000	2.45
10 HWY 97	VALENS	LENNON	20	1.93	1.69	1.14	2.591	2284	2.07
11 HWY 53	HWY 2	FIDDLERS GREEN	56	1.86	1.17	1.59	3.45	5000	6.03
12 MUD	ARBOUR	PARAMOUNT	47	1.8	1.22	1.48	0.825	18127	5.23
13 FLETCHER RD	BINBROOK	GUYATT	4	1.78	3.56	0.50	2.084	618	0.45
14 WILSON A	HAMILTON DR	FIDDLERS GREEN	32	1.76	1.37	1.28	0.66	15761	3.64
15 SUNNYRIDGE	HWY 2	JERSEYVILLE	5	1.67	3.03	0.55	2.248	763	0.6
16 JERSEYVILLE	PADDY GREENE	MARTIN A	11	1.65	2.04	0.81	1.856	2055	1.33
17 UPPER PARADISE	RYMAL	STONE CHURCH	28	1.64	1.4	1.17	1.015	9624	3.42
18 MOHAWK A	WILSON A	HWY 403	40	1.63	1.25	1.3	0.816	17228	4.91
19 HWY 97	BROAK RD	HWY 6 F	4	1.63	3.39	0.48	0.474	2941	0.49
20 HWY 2	REGIONAL LIMITS	TRINITY	118	1.61	0.94	1.71	5.250	8000	14.68
21 RIDGE RD	MCNEILLY	REGIONAL LIMITS	2	1.60	5.09	0.31	0.552	1306	0.25
22 MOUNTAIN BROW BL	MOHAWK H	ARBOUR	43	1.58	1.21	1.31	1.586	9798	5.43
23 DICKENSON	MILES RD G	NEBO G	4	1.48	3.21	0.46	1.745	893	0.54
24 GLOVER S	HWY 8 S	SOUTH SERVICE	2	1.48	4.85	0.31	0.609	1249	0.27
25 5TH CON	MIDDLETOWN	BROCK RD	7	1.44	2.37	0.61	2.678	1034	0.97
OVERALL STATISTICS FOR ALL ARTERIAL STREETS:				0.58					

OVERALL STATISTICS FOR ALL ARTERIAL STREETS:

* RURAL ROAD SECTIONS ARE DEFINED AS THOSE WITH SHOULDERS AND DITCHES



Notes:

- (a) RL is the number of collisions, per million vehicles-km per year
- (b) RC is a volume-distance adjusted critical rate. If RL exceeds RC (ie. RL/RC is greater than 1.0), one can state with 95 percent confidence that the collision rate at the location in question is significantly higher than would normally be expected.
- $$RC = Ra + K(\text{the square root of: } (Ra/m)) + (0.5/m)$$
- Where: Ra = systemwide average collision rate for all locations of the same category (0.58 collisions per million vehicle-km per year)
 K = constant (=1.65 for 95 % confidence level)
 m = vehicle exposure at the location in million vehicles-km per year (AWDTx349.6xLink/1,000,000)

(c) AWDT is Average Weekday Daily Traffic.

(d) Link is the road section distance in km.

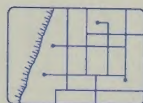
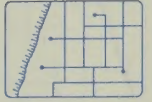


Exhibit 2.10

1997 COLLISION STATISTICS - SELECTED CANADIAN CITIES

CITY OR REGIONAL MUNICIPALITY	POPULATION	PROPERTY DAMAGE ONLY				COLLISION REPORTING CRITERIA (1)				TOTAL COLLISIONS	COLLISIONS /1,000 POPULATION	INJURY COLLISIONS /1,000 POPULATION
		COLLISION REPORTING LEVEL				Other						
		(a)	(b)	(c)	(d)							
		LEVEL										
CITIES												
HAMILTON	322,352	\$700.00	N	N	Y	Y	f		4,298	13.3	1,559	4.8
CALGARY	790,498	\$1,000.00	Y	Y	Y	Y	f		29,917	37.8	3,830	4.8
EDMONTON	625,450	\$1,000.00	N	N	N	Y			17,648	28.2	5,648	9.0
HALIFAX	330,000	\$1,000.00	Y	Y	Y	Y			5,106	15.5	1,007	3.1
LONDON	326,000	\$700.00	Y	Y	Y	Y			10,919	33.5	2,024	6.2
MONTREAL	1,017,000	\$500.00	N	N	N	Y	g		22,210	21.8	4,509	4.4
MISSISSAUGA (8)	595,000	\$700.00	N	N	N	Y			5,410	9.1	1,259	2.1
REGINA	180,400	\$1,000.00	N	N	N	Y	f		4,136	22.9	1,214 (3)	6.7
SASKATOON	204,700	\$1,000.00	N	N	N	Y	f		6,866	33.5	1,283	6.0
METRO TORONTO (1995)	2,187,000	\$700.00	Y	Y	Y	Y	e, f		49,419	22.6	16,202 (3)	7.4
VANCOUVER	543,871	\$1,000.00	N	N	N	Y	f		6,048	11.1	2,850	5.2
WINDSOR	200,000	\$1,000.00	N	N	N	Y			4,840	24.2	1,077	5.4
WINNIPEG	635,000	\$1,000.00	Y	Y	Y	Y	f		14,014	22.1	3,570	5.6



CITY OR REGIONAL MUNICIPALITY	PROPERTY DAMAGE ONLY		COLLISION REPORTING CRITERIA (1)				TOTAL COLLISIONS	COLLISIONS /1,000		INJURY COLLISIONS /1,000	
	POPULATION	LEVEL	(a)	(b)	(c)	(d)		Other	POPULATION		
											Other
REGIONS											
REGIONAL HAMILTON-WENTWORTH (4)	467,799	US\$700.00	N	N	Y	Y	f	5,693	12.2	2,075	4.4
REGION OF HALTON (6)	339,875	US\$700.00	N	N	Y	Y		5,257	15.5	912	2.7
REGIONAL OTTAWA-CARLTON	721,090	US\$700.00	N	N	N	Y	e,f	12,496	17.3	2,962	4.1
REGIONAL MUNICIPALITY OF PEEL (5) (1996)	852,526	US\$700.00	Y	Y	Y	Y	e,f	3,692	4.3	813	1.0
REGIONAL WATERLOO (7) (1995)	419,150	US\$700.00	Y	Y	Y	Y	f	12,716	30.3	1,668	4.0

(1) KEY TO CRITERIA FOR REPORTING COLLISIONS (See next page for definitions of injury collisions)

It is generally assumed, unless otherwise noted, that only collisions occurring on public roadways involving personal injury or property damage greater than the reporting level are included on this table.

- (a) Collisions reported involving an infraction of the Provincial Highway Traffic Act with property damage only and less than reporting level.
- (b) Collisions reported involving an infraction of the Criminal Code of Canada with property damage only and less than reporting level.
- (c) Hit and run collisions reported with property damage only and less than reporting level.
- (d) Collisions reported if it involves any personal injury.
- (e) Public property damage collisions.
- (f) Collisions involving City or Regional government vehicles.
- (g) "With the introduction of amicable constat by insurance companies in July, 1979, a great number of accidents with material damages are not reported and are out of control".

(2) Only injuries requiring medical attention were classified as injury collisions.

(3) Injury collisions do not include fatal collisions.

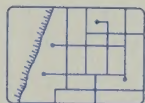
(4) Not including Kings Highways.

(5) Regional municipality statistics are for Regional roads only and do not include Burlington, in the case of Halton, or Mississauga, Brampton, or Caledo in the case of Peel. Thus, the collision rates stated will substantially underrepresent the actual rates for all roads within that Regional municipality.

(6) Regional Municipality of Halton statistics are for Regional roads only, within Halton Region as provided by Halton Region Police.

(7) Regional Municipality of Waterloo statistics are for both Regional and area municipality roads. Injury collisions include fatal collisions.

(8) Data is for City roadways only, and does not include Regional roadways. Thus, the collision rates stated will underrepresent the overall rates.



DEFINITIONS OF "PERSONAL INJURY" (a)

Regional Hamilton-Wentworth	- any bodily harm, visible or complained of, that results from a motor vehicle collision.
City of Hamilton	- any bodily harm, visible or complained of, that results from a motor vehicle collision.
Calgary	- any type of injury resulting from a collision.
Edmonton	- including minor abrasions and bruises, complaint of pain, caused by a motor vehicle collision.
Halifax	- injury or death (no stipulation regarding severity of injury) caused by a motor vehicle collision.
London	- any type of injury, visible or complained of, caused by a collision; need not be treated at a hospital.
Mississauga	- N/A
Metro Toronto	- injury must be reported when an injury occurs to any of the involved persons in a collision.
Montreal	- any injury, apparent or not, to any person, caused directly or indirectly, by a motor vehicle.
Regina	- any bodily harm, visible or complaint of, caused by the accident.
Saskatoon	- any bodily harm, visible or complaint of, caused by the accident.
Vancouver	- N/A
Windsor	- any injury resulting from a motor vehicle collision.
Winnipeg	- readily identifiable injury or perceived injury caused by a collision.
Region of Halton	- any bodily harm, visible or complaint of, that results from a motor vehicle collision.
Regional Municipality of Peel	- any bodily harm, visible or complaint of, that results from a motor vehicle collision.
Regional Ottawa-Carlton	- injury is any bodily harm, visible or complained of, caused by a motor vehicle collision.
Region of Waterloo	- injury or death caused by a motor vehicle collision.

(a) Definitions of a "personal injury" such that a collision involving a personal injury must be reported.

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